GYPSUM BOARD FORMING DEVICE WITH IMPROVED SLURRY SPREAD

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to co-pending provisional patent application entitled A Method of Improving Slurry Spread Prior to the Extruder Pinch Point filed on Sep. 11, 2006 under application Ser. No. 60/844,129. The contents of this co-pending application are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a system for improving slurry spread. More specifically, the present invention relates to a forming table with an arcuate or angled cross section that improves the distribution of slurry in the area immediately prior to the pinch point.

2. Description of the Background Art

The prior art contains several examples of gypsum board forming devices. These devices employ various mechanisms for ensuring the shape and quality of the resulting board. For example, U.S. Pat. No. 2,722,262 to Eaton discloses an apparatus for the continuous production of a paper encased gypsum plaster strip. The apparatus includes a table over which a continuous strip is passed. The apparatus further includes a block and side guide members for shaping the strip and associated gypsum.

Additionally, U.S. Pat. No. 3,373,065 to Gutzman discloses a gypsum board forming machine. Support guides on the bed of the machine raise the edge portions of the bottom cover sheet to form a trough. Due to the depth of the trough, the head of the slurry which accumulates at the entrance to a board forming passageway is laterally confined.

U.S. Pat. No. 1,751,953 to Spengler discloses a plaster board manufacturing apparatus. The apparatus includes a conveyor onto which a plastic material is deposited. Damming bars are provided to prevent the plastic material from flowing from the applied sheet or from banking too near the edge thereof.

Finally, U.S. Pat. No. 5,718,797 to Phillips et. al. discloses an apparatus for manufacturing gypsum board. The apparatus includes a conveyor and a duct for dispensing gypsum slurry. The slurry flows and spreads out across an underlying sheet. Folding shoes are included at the borders for folding the borders upwardly.

Although the above referenced inventions achieve their individual objectives, all suffer from common drawbacks. Namely, none of the referenced inventions is directed at promoting the uniform distribution of slurry adjacent a pinch point.

SUMMARY OF THE INVENTION

It is therefore one of the objectives of this invention to provide a gypsum board forming device that promotes the uniform distribution of slurry adjacent a pinch point.

It is yet another objective of this invention to provide a gypsum board forming device the promotes the spread of slurry to the edges of an associated forming table.

It is another objective of this invention to provide a gypsum board forming device that produces boards without voids and that have an improved strength and durability.

The foregoing has outlined rather broadly the more pertinent and important features of the present invention in order that the detailed description of the invention that follows may be better understood so that the present contribution to the art can be more fully appreciated. Additional features of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and the specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. **1** is a schematic view of a gypsum board forming device.

FIG. **2***a* is a cross sectional view taken along line **2-2** of FIG. **1**.

FIG. **2***b* is a cross sectional view of an alternative embodiment taken along line **2-2** of FIG. **1**.

FIG. **3***a* is a cross sectional view taken along line **3-3** of FIG. **1**.

FIG. **3***b* is a cross sectional view of an alternative embodiment taken along line **3-3** of FIG. **1**.

FIG. **4** is a cross sectional view taken along line **4-4** of FIG. **1**.

FIG. **5** is a plan view taken along line **5-5** of FIG. **1**.

FIG. **6** is a plan view of a flat forming table.

Similar reference characters refer to similar parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention relates to a gypsum board forming device which provides improved slurry spread. The device includes a forming table with an arcuate or angled profile that promotes a uniform distribution of slurry. The shape can be used in conjunction with conventional agitators that are likewise used to promote slurry spread. An arcuate or angled hinge plate can also be included to further promote the uniform distribution of slurry prior to an extrusion plate. As a result of the improved slurry distribution, boards with increased strength and durability can be created. The various details of the present invention, and the manner in which they interrelate, will be described in greater detail hereinafter.

With reference now to FIG. **1**, the gypsum board forming device **20** of the present invention is depicted. Device **20** preferably includes three forming tables (**22**, **24** and **26**) arranged in end to end fashion. Nonetheless, those skilled in the art will appreciate that any number of board forming tables can be employed in conjunction with the present invention. As is known, the tables can include vibrators or agitators **50** (note FIG. **5**) that promote the uniform distribution of slurry.

A gypsum slurry **42** is supplied to the forming tables from a continuous mixer **28** via one or more boots **60**. Mixer **28** accepts the raw materials used to produce gypsum (i.e. stucco, plaster, gypsum, water and other additives) and produces a slurry mixture suitable for use in making gypsum